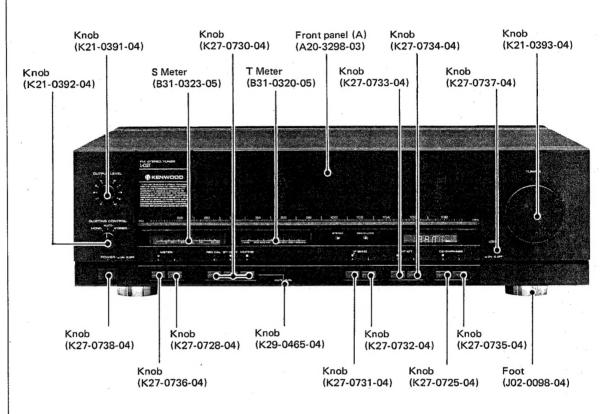
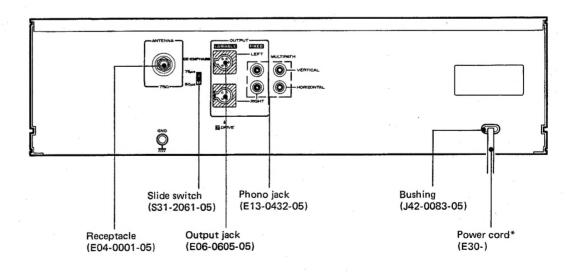


FM STEREO TUNER



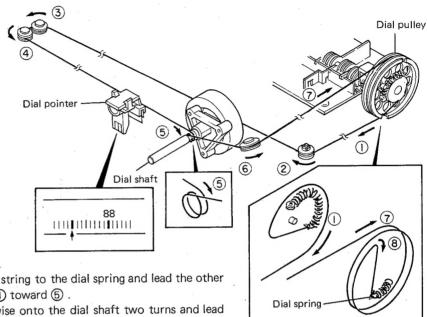


* Refer to Parts List on page 21.



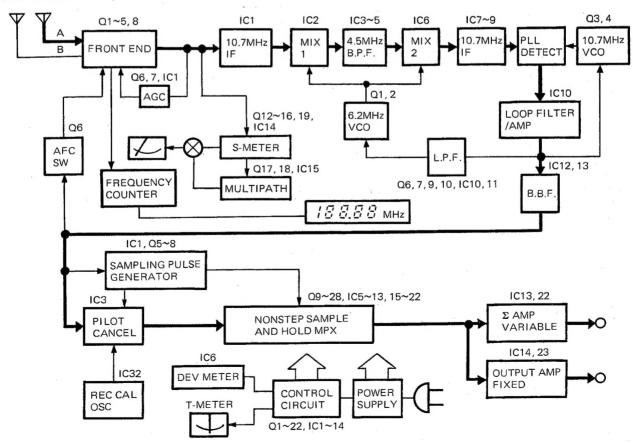
DIAL CORD STRINGING/BLOCK DIAGRAM

DIAL CORD STRINGING



- 1. Open the variable capacitor.
 - 2. Fasten one end of the dial string to the dial spring and lead the other end in the direction from ① toward ⑤ .
 - 3. Wind the dial string clockwise onto the dial shaft two turns and lead it in the direction from 6 toward 8.
 - 4. Wind the dial string clockwise onto the dial pulley two turns and tie the end of the string to the dial spring.
 - 5. Close the variable capacitor and fix the pointer at the position shown in the diagram, above.

BLOCK DIAGRAM





CIRCUIT DESCRIPTION

Explanation of Circuit Operation-1

1, Front End (X01)

Like the L-01T, the L-02T employs a direct/normal switching gate, a junction FET balanced mixer, and a balance type 2-stage IF amplifier to improve the linearity and mutual modulation. In addition, the L-02T newly employs an AGC circuit to stabilize the IF output level for the new IF system. The AGC circuit limits the IF output to approximately 300mV rms when antenna input is over approximately 100dBf, allowing the IF amplifier to operate in the range where it displays the optimum linearity.

2. IF (X02)

The problem involved in high-fidelity reproduction by the IF unit is the effect of distortion generated from IF-B.P.F. To solve this problem, many of conventional tuners switch the B.P.F. according to the band to ensure high selectivity for narrow bands and high-fidelity reproduction for wide bands. In order to attain reproduction of higher fidelity, however, it is necessary to increase the B.P.F band, which makes it difficult to obtain the selectivity demanded for as a receiver.

The new IF system (non-spectrum IF) employed in the L-02T compresses the deviation of frequency passing through the B.P.F. to relatively widen the B.P.F. band, enabling exceptional high-fidelity reproduction.

Figure 2 illustrates how the frequency deviation (side band wave) is compressed. Mixer 1, which is a subtraction heterodyne mixer, puts out to B.P.F. the difference f3 (4.5MHz) between the input $f1\pm\Delta f$ (10.7MHz $\pm\Delta f$) and the VCO 1 input $f2\pm\Delta f$ (6.2MHz $\pm\Delta f$) (equation1). Thus, the deviation Δf disappears, leaving only the B.P.F. center frequency, which enables distortion-free transmission. Since f3 itself has no Δf component, mixer 2, an addition heterodyne mixer, adds $f2\pm\Delta f$ to f3 to botain f4 (equation 2). f4 represents 10.7MHz $\pm\Delta f$, which is the same as the IF signal from the front end. The signal then passes through the wide-band 10.7MHz IF amplifier and enters the phase comparator fo the PLL detector.

The phase comparator detects the phase difference between the IF signal and the VCO 2 output. The output of the phase comparator, after removed of noise outside the band by the loop filter, is negatively fed back to VCO 2, making the VCO 2 frequency coincide with the IF signal frequency. At this time, the VCO 2 control voltage appears as an FM demodulation output. Since the output of the phase comparator tends to become zero, the FM demodulation output cannot be detected at this stage. (Strictly speaking, dynamic error exists.)

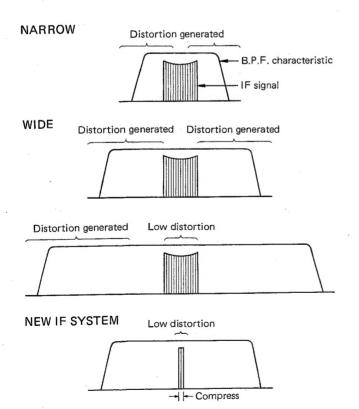


Fig. 1

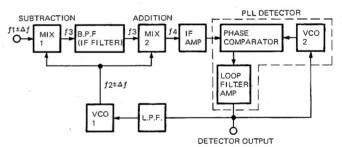


Fig. 2

-02T

CIRCUIT DESCRIPTION

The actual circuit of ring modulator type is shown in Figure 3. The VCO output is used to switch the IF signal phase: positive when ① is ① and negative when ① is ②. When ① is ① diodes D10 and D9 turn on and ② becomes equivalent to GND, leaving the wave form appearing at ⑤ invariable. When ① is ② , diodes D7 and D8 turn on and ③ is connected to GND, inverting the wave form appearing at ⑤ . Diodes are provided with a protective resistor.

With the PLL locked, the VCO wave form phase deviates 90° from the input IF signal. In this case, the phase comparator ourput becomes zero as \bigoplus and \bigoplus cancel out each other. When the input IF signal becomes $+\Delta f$, the phase difference decreases, making the phase comparator output positive. This output is turned negative by the inverting amplifier and applied to the VCO vari-cap diode, the VCO frequency following $+\Delta f$. The operation is the same when the input IF signal is $-\Delta f$. This VCO control voltage passes through the 2-stage active base band filter and is put out to the MPX circuit. It is also put out to VCO 1 for second intermediate frequency through L.P.F.

The S-meter and the multipath circuit are the same as for the KT-917.

3. MPX

The major features of the new circuit are as follows:

- Carrier leak (38kHz, etc.) is extremely reduced, eliminating the need of a low-pass filter which tends to deteriorate the tone quality.
- 2. Makes the high use of the high separation obtained by the sampling hold method.
- Uniform demodulation wave form eliminates distortion at the post-stage amplifier.
- 4. Wide dynamic range improves the S/N ratio.

It is assumed here that the composite signal has been modulated by a triangular wave (1). By the sampling pulse IC switching pulse L (2), the sampling hold circuit completely separates the L-channel component from the composite signal as shown in (3). Then, by the sampling pulse IC switching pulse R (4), the wave form of (3) is sample-held as shown in (5). When this wave form is reheld by the switching pulse L (2), the wave form shown in (6) is obtained. Subtracting (6) form (3) produces the step voltage shown in (7). The wave form of (7) is converted into a slope having a period of 38kHz by an integrator using the switching pulse L for resetting as shown in (8). Finally, (6) and (8) are synthesized to obtain the stepwise wave form shown on (9).

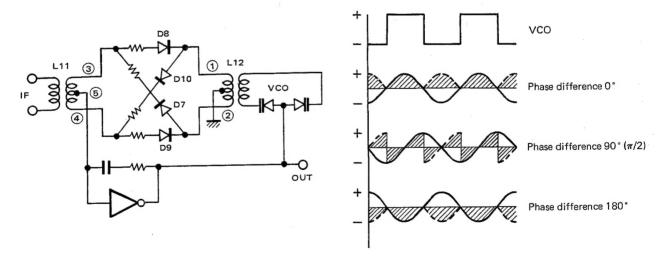
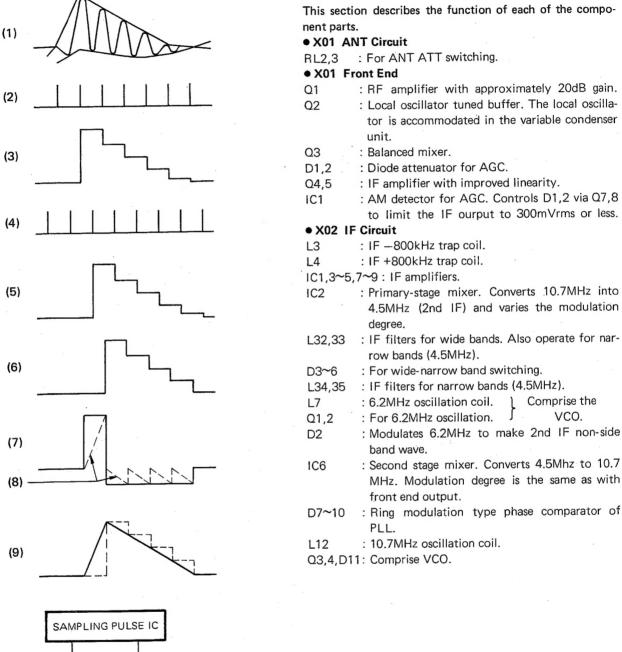


Fig. 3

CIRCUIT DESCRIPTION

Explanation of Circuit Operation-2



(1) SAMPLING (3) SAMPLING (6) HOLD (9) OUTPUT RESET INTEGRAL (8)

Fig. 4

-02T

CIRCUIT DESCRIPTION

Q6,7	: For compensating f-characteristic for narrow
	band. "ON" for narrow band.
1010	Di da O function as DI I DE and mut aut

IC10 : Pins 1~3 function as PLL L.P.F. and put out DC component to D11. Pins 5~7 amplify detection output from pin 1.

IC12,13: Pins 1~3 comprise B.B.F. IC13 puts out signal to T-meter and MPX.

L13 : Noise tuning coil.

Q9 : For compensating f-characteristic. "ON" for narrow band.

IC11 : Pins 5~7 are DC amplifier for 6.2MHz VCO.
Pins 1~3 are noise amplifier.

IC12 : Pins 5~7 are noise amplifier. Puts out – voltage from noise component to turn Q10 "OFF".

Q8 : For adjusting noise component. "ON" for narrow band, increasing the gain of noise amplifier IC11.

1C13 : Pins 5~7 put out signal S-M converted by D16,17 and muting signal from noise amplifier output.

Q5,11 : VCO power supply unit (constant voltage regulator).

Q19, IC14: IF amplifiers for S-meter.

CF1,2 : Narrow-band ceramic filter facilitating detection of S-meter peak. Adjusts IF system to this center frequency.

Q12~16 : Log amplifiers for S-meter to display in dBf.

Q17,18 : Amplifiers for multipath.

IC15 : Pins 1~3 are S-meter output ; pins 5~7 are multipath output.

D21,22 : Switch S-meter circuit sensitivity by ANT-ATT switching of RF stage.

• X04 MPX

Q1,2 : C-MOS power supply (±8V). Q3,4 : IC1 power supply (±6V).

iC2 : Pins 6,8, and 9 cut extremely low band of input signal to prevent shock noise while tuning. Pins 1~5 and 10~13 switch REC CAL.

: Pins 5~7 are buffer to divide signal into deviation circuit, IC1, and pin 2 of IC3. Pins 1~3 are for pilot cancellation.

1C1 : Sampling hold multi-demodulation IC. This IC alone permits multi-demodulation. Uses four sampling pulse shots, pilot cancel, and stereo lamp circuit (equivalent to KT-1000 multiunit).

IC5 (Pins 1~3),Q9~12: Composite signal final stage drive amplifier. They are divided into L-ch and R-ch in subsequent stages, using separate power supply units.

IC9 : C-MOS switch for L-ch.

IC27 : C-MOS switch for quieting control. Blends L and R separated by IC9,18.

IC6 (Pins 5~7),Q13~16 : L-ch driver. 1/76 mS delay. Waveform (3) \rightarrow (5). See Figure 4.

IC6 (Pins 1~3),Q17~20 : L-ch driver. 1/76 mS delay. Total delay 1/38 mS. Waveform (5) \rightarrow (6).

1C7 : Pins 5~7 are buffers. Pins 1~3 invert waveform delayed by 1/38 mS, and at the same time, pin 3 makes offset adjustment. This is due to the presence of potential difference of C-MOS switch.

IC8 (Pins 5 \sim 7): Resets and integrates waveform obtained from the added waveform of the waveform (3) and the inverted waveform (6) [(3) - (6)].

IC8 (Pins $1\sim3$) : Synthesizes waveforms (6) and (8), and performs SCA rejection.

IC10 : For separation (wide-narrow) and f-characteristic (stereo-mono) adjustment.

IC11 : Buffer and L.P.F.

IC12 : C-MOS switch for on-off of stereo-mono L.P.F.IC13 : Buffer and variable output amplifier. Functions

as Σ drive.

IC14 : FIXED output amplifier.

IC24,IC5 (Pins 5~7),IC4: SCA rejection circuit.

Q34 : Muting relay driver.

IC29 : Turns "ON" during muting operation to decrease the gain of IC13.

• X13 Control Circuit

IC11~13: Accepts input in each mode and displays its status by LED. Perform battery back-up while power is off.

IC7 : Switches signal-multipath and puts out to meter.

IC1 : Detects muting level.

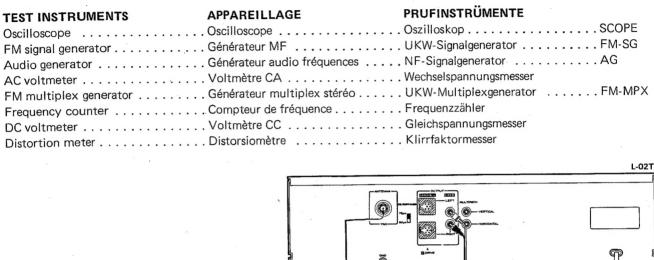
IC5,Q5 : Touch sensor circuits ; Q5 for oscillation, and IC5 for detection.

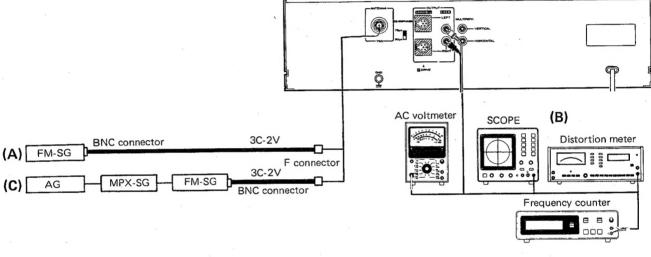
IC5 (Pins 1~3): Puts out AFC signal from T-meter signal. IC2,3: Puts out muting signal, mono-stereo signal, lock LED signal, and meter muting signal.

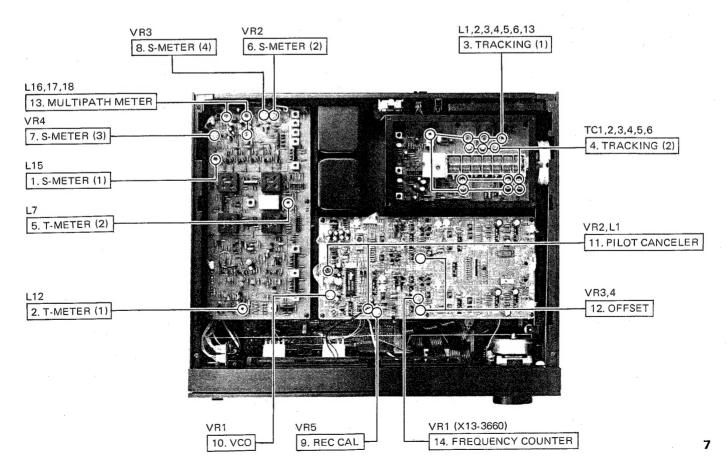
IC14 : Puts out IF BAND switching signal.Q20,21 : Puts out ANT ATT select signal.Q18,19 : Puts out DE-EMPHASIS select signal.



ADJUSTMENT/REGLAGE/ABGLEICH









ADJUSTMENT

Unless otherwise specified, the individual switches should be set as follows: QUIETING: AUTO IF BAND: WIDE REC CAL: OFF LPF: OFF MUTING: OFF METER: SIGNAL ANT ATT: 0dB DE-EMPHASIS: NORMAL LOCK: OFF

NO.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	S-METER (1)	(A) 100MHz 0 (Dev) 60dB (ANT input)	S-meter	100MHz	X02-1210 L15	Maximum deflection	
2	SETTINGS		T-meter	100MHz	X02-1210 L12	Set T-meter pointer in center.	
3		90MHz	S-meter	90MHz	X01-1320 L1,2,3,4, 5,6,13	Maximum deflection	
4		106MHz	S-meter	106MHz	X01-1320 TC1,2,3,4,5,6	Maximum deflection	
		(1) 0 (Dev) 60dB (ANT input) (A) 90MHz 1kHz ± 75kHz (Dev) TRACKING (2) (A) 106MHz 1kHz ± 75kHz (Dev) T-METER (2) (A) S-METER (2) (A) S-METER (2) (A) S-METER (3) (A) 100MHz 0 (Dev) 59dB (ANT input) S-METER (4) (A) 100MHz 0 (Dev) 59dB (ANT input) REC CAL (A) 100MHz 0 (Dev) 59dB (ANT input) REC CAL (A) 100MHz 0 (Dev) 59dB (ANT input) (A) 100MHz 0 (Dev) 59dB (ANT input) (A) 100MHz 0 (Dev) 59dB (ANT input) (C) 100MHz Pilot signal 60dB (ANT input)		and 4 several times.			
5		_	T-meter	100MHz IF BAND: NARROW	X02-1210 L7	Set T-meter pointer in center.	
6		100MHz 0 (Dev)	S-meter	100MHz	X02-1210 VR2	50dBf	
7		100MHz 0 (Dev)	S-meter	100MHz	X02-1210 VR4	70dBf	
			Repeat alignments 6	and 7 several times.			
8	(A) S-METER 100MHz 0 (Dev) 59dB (ANT input		S-meter	100MHz ANT ATT : -20dB	X02-1210 VR3	50dBf	
9	REC CAL	· -	(B)	REC CAL : ON	X04-1150 VR5	380mV	
10	vco	100MHz 0 (Dev)	(B)	100MHz Connect 470kΩ resistor between IC1 pins 18 and 2 of X04-1150.	X04-1150 VR1	19.00kHz	
11		100MHz Pilot signal	Connect oscillo- scope to intersec- tion of R31 and R32 of X04-1150.	100MHz	X04-1150 VR2 L1	Minimum pilot signal	
12	OFFSET	(C) 100MHz Pilot signal 60dB (ANT input)	Connect oscillo- scope to IC10 pin 7 (L) or to IC19 pin 7 (R) of X04-1150.	100MHz	X04-1150 VR3 (L) VR4 (R)	Minimum output	
13	MULTIPATH METER	(C) 100MHz 38kHz (Mod) 10% (AM) 60dB (ANT input)	Multi-path meter	100MHz METER : MULTIPATH	X02-1210 L16,17,18	Maximum deflection	
14	FREQUENCY COUNTER	(A) 100.00MHz 0 (Dev) 20dB (ANT input)	Digital display	MONO 100MHz	X13-3660 VR1	100.0MHz	



ADJUSTMENT

NOTE: Distortion and separation have been factory-adjusted by using precision-class measuring instruments. As far as possible, avoid making the following adjustments, since ordinary measuring instruments are not enough to accurate

ly measure the distortion, phase, and S/N ratio. For reference purpose, the method of adjustment using FM-SG: MSG-2901 and MPX-SG: MSG-211G is given below.

NO.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGMENT POINTS	ALIGN FOR	FIG.
15	DISTORTION (MONO)	(A) 100MHz 1kHz ± 75kHz (Dev) 80dB (ANT input)	(B)	100MHz	X02-1210 L1,2	Minimum distortion	
16	DISTORTION (STEREO WIDE)	(C) 100MHz 1kHz ± 68.25kHz (Dev) Selector : L or SUB 80dB (ANT input)	(B)	100MHz	X02-1210 L32 (colorless core)	Minimum distortion	
17	DISTORTION (STEREO NARROW)	(C) 100MHz 1kHz ± 68.25kHz (Dev) Selector : L or SUB 80dB (ANT input)	(B)	100MHz NARROW	X02-1210 L34 (colorless core)	Minimum distortion	
18			(B)	100MHz	X04-1150 VR8 (L) VR10 (R)	Minimum cross talk	
19	SEPARATION (NARROW)	(C) 100MHz 1kHz ± 68.25kHz (Dev) Selector : L or R 60dB (ANT input)	(B)	100MHz NARROW	X04-1150 VR9 (L) VR11 (R)	Minimum cross talk	
20	SCA (1)	(C) 100MHz 73kHz ± 6.7kHz (Dev) 60dB (ANT input)	(B)	100MHz	X04-1150 VR6 (L) VR7 (R)	Minimum output	
21	SCA (2)	(C) 100MHz 65kHz ± 6.5kHz (Dev) 60dB (ANT input)	(B)	100MHz	X04-1150 L2	Minimum output	



REGLAGE

Sauf en cas d'indications spéciales, régler chaque commutateur comme suit : QUIETING : AUTO IF BAND : WIDE REC CAL : OFF LPF : OFF MUTING : OFF METER : SIGNAL ANT ATT : OdB DE-EMPHASIS : NORMAL LOCK : OFF

No	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINTS DE L'ALIGNEMENT	ALIGNER POUR	FIG.
1	COMPTEUR S	(A) 100MHz 0 (Dév) 60dB (Entrée ANT)	Compteur S	100MHz	X02-1210 L15	Déviation maximale	
2	COMPTEUR T	(A) 100MHz 0 (Dév) 60dB (Entrée ANT)	Compteur T	100MHz	X02-1210 L12	Amener l'aiguille du compteur T au point centre.	
3	SYNTONISA- TION (1)	(A) 90MHz 1kHz ± 75kHz (Dév)	Compteur S	90MHz	X01-1320 L1,2,3,4,5,6,13	Déviation maximale	
4	SYNTONISA- TION (2)	(A) 106MHz 1kHz ± 75kHz (Dév)	Compteur S	106MHz	X01-1320 TC1,2,3,4,5,6	Déviation maximale	
			Répéter les po	ints 3 et 4 plusieurs foi	s.		
5	COMPTEUR T		Compteur T	Compteur T 100MHz IF BAND: NARROW		Amener l'aiguille du compteur T au point centre.	
6	COMPTEUR S (2)	(A) 100MHz 0 (Dév) 39dB (Entrée ANT)	Compteur S	100MHz	X02-1210 VR2	50dBf	
7	COMPTEUR S	(A) 100MHz 0 (Dév) 59dB (Entrée ANT)	Compteur S	100MHz	X02-1210 VR4	70dBf	
			Répéter les po	ints 6 et 7 plusieurs foi	is.		
8	(A) COMPTEUR S 100MHz (4) 0 (Dév) 59dB (Entrée AN		Compteur S	100MHz DIRECT	X02-1210 VR3	50dBf	
9	REC CAL	- ·	(B)	REC CAL : ON	X04-1150 VR5	380mV	
10	OSCILLATEUR CONTROLE PAR LA TENSION	(A) 100MHz 0 (Dév) 80dB (Entrée ANT)	(B)	100MHz Connecter une résistance de 470kΩ entre les fiche 18 et 2 de IC1, X04-1150.	X04-1150 VR1	19,00kHz	
11	ANNULATEUR DE SIGNAL PILOTE	(C) -100MHz Signal pilote 60dB (Entrée ANT)	Connecter un oscilloscope au point d'intersec- tion entre R31 et R32 de X04-1150.	100MHz	X04-1150 VR2 L1	Sortie de signal pilote minimale.	
12	ECART DE REGLAGE	(C) 100MHz Signal pilote 60dB (Entrée ANT)	Connecter un oscilloscope (G) à la fiche 7 de IC10, ou à la fiche 7 de IC19, de X04-1150.	100MHz	X04-1150 VR3 (G) VR4 (D)	Sortie minimale.	
13	COMPTEUR DE MULTIVOIES	(C) 100MHz 38kHz (Mod) 10% (AM) 60dB (Entrée ANT)	Compteur de multivoies	100MHz	X02-1210 L16,17,18	Déviation maximale	
14	CADRAN NUMERIQUE DES FREQUENCES	(A) 100,00MHz 0 (Dév) 20dB (Entrée ANT)	Cadran numerique	MONO 100MHz	X13-3660 VR1	100,0MHz	



REGLAGE

NOTE : Le réglage de la distorsion et de l'effet stéréophonique est effectué avec un appareil de mesure à haute précision.

Les appareils de mesute ordinaires, étant donnés qu'ils manquent de précision dans la mesure de la phase, de la distorsion et du rapport signal sur bruit, ne permettraient

pas un réglage correct. De ce fait, il est déconseillé d'effectuer les réglages mentionnés ci-dessous.

A titre d'information, les réglages ayant recours à FM-SG : MSG-2901, MPX-SG : MSG-211G sont expliqués comme suit.

No	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINTS DE L'ALIGNEMENT	ALIGNER POUR	FIG.
15	DISTORSION (MONO)	(A) 100MHz 1kHz ± 75kHz (Dév) 80dB (Entrée ANT)	(B)	100MHz	X02-1210 L1,2	Distorsion minimale	
16	DISTORSION (STEREO WIDE)	(C) 100MHz 1kHz ± 68,25kHz (Dév) Sélecteur : L ou SUB 80dB (Entrée ANT)	(B) _.	100MHz	X02-1210 L32 (Noyau sans couleur)	Distorsion minimale.	
17	DISTORSION (STEREO NARROW)	(C) 100MHz 1kHz ± 68,25kHz (Dév) Sélecteur : L ou SUB 80dB (Entrée ANT)	(B)	100MHz NARROW	X02-1210 L34 (Noyau sans couleur)	Distorsion minimale.	
18	SEPARATION (WIDE)	(C) 100MHz 1kHz ± 68,25kHz (Dév) Sélecteur : L ou R 60dB (Entrée ANT)	(B)	100MHz	X04-1150 VR8 (G) VR10 (D)	Diaphonie minimale.	
19	SEPARATION (NARROW)	(C) 100MHz 1kHz ± 68,25kHz (Dév) Sélecteur : L ou R 60dB (Entrée ANT)	(B)	100MHz NARROW	X04-1150 VR9 (G) VR11 (D)	Diaphonie minimale.	
20	SCA (1)	(C) 100MHz 73kHz ± 6,7kHz (Dév) 60dB (Entrée ANT)	(B)	100MHz	X04-1150 VR6 (G) VR7 (D)	Sortie minimale.	
21	SCA (2)	(C) 100MHz 65kHz ± 6,5kHz (Dév) 60dB (Entrée ANT)	(B)	100MHz	X04-1150 L2	Sortie minimale.	



ABGLEICH

Außer wenn anders angegeben, die verschiedenen Schalter wie folgt einstellen : QUIETING : AUTO IF BAND : WIDE REC CAL : OFF IPF : OFF MUTING : OFF METER : SIGNAL ANT ATT : 0dB DE-EMPHASIS : NORMAL LOCK : OFF

NR.	GEGENSTAND	EIGANGS EINSTELLUNG	AUSGANGS EINSTELLUNG	TUNER- EINSTELLUNG	ABGLEICH- PUNKTE	ABGLEICHEN FUR	ABB
1	S-METER (1)	(A) 100MHz 0 (Hub) 60dB (ANT-Eingang)	S-Meter	100MHz	X02-1210 L15	Maximaler Ausschlag	
2	T-METER (1)	(A) 100MHz 0 (Hub) 60dB (ANT-Eingang)	T-Meter	100MHz	X02-1210 L12	Den Zeiger des T-Meters auf die Mitte einstellen.	
3	KRIECHWEG- BILDUNG (1)	(A) 90MHz 1kHz ± 75kHz (Hub)	S-Meter	90MHz	X01-1320 L1,2,3,4, 5,6,13	Maximaler Ausschlag	
4	KRIECHWEG- BILDUNG (2)	(A) 106MHz 1kHz ± 75kHz (Hub)	S-Meter	106MHz	X01-1320 TC1,2,3,4,5,6	Maximaler Ausschlag	
			Abstimmungen 3 und	4 mehrere Male wieder	holem.		
5	T-METER (2)	_	T-Meter	100MHz X02-121 IF BAND: NARROW L7		Den Zeiger des T-Meters auf die Mitte einstellen.	
6	S-METER (2)	(A) 100MHz 0 (Hub) 39dB (ANT-Eingang)	S-Meter	100MHz X02-1210 VR2		50dBf	
7	(A) S-METER (3) (3) (Bub) 59dB (ANT-Eingang)		S-Meter	100MHz	X02-1210 VR4	70dBf	
_			Abstimmungen 6 und	7 mehrere Male wieder	rholem.	•	
8	S-METER (4)	(A) 100MHz 0 (Hub) 59dB (ANT-Eingang)	S-Meter	100MHz DIRECT	X02-1210 VR3	50dBf	
9	REC CAL	-	DEV-Meter	REC CAL: ON	X04-1150 VR5	380mV	
10	SPANNUNGS- GEREGELTER OSZILLATOR	(A) 100MHz 0 (Hub) 80dB (ANT-Eingang)	(B)	100MHz Einen 470kΩ Widerstand zwischen den Stiften 18 und 2 von X04-1150 IC1 anschließen.	X04-1150 VR1	19,00kHz	
11	PILOTTON- ANNULIERER	(C) 100MHz Pilotton 60dB (ANT-Eingang)	Oszilloskop an den Schnittpunkt von X04-1150 R31 und R32 anschließen.	100MHz	X04-1150 VR2 L1	Minimaler Pilotton-ausgang	
12	VERSTZUNG	(C) 100MHz Pilotton 60dB (ANT-Eingang)	Oszilloskop zum Stift 7 von IC10 oder zum Stift 7 von IC19 von X04-1150 anschließen.	100MHz	X04-1150 VR3 (L) VR4 (R)	Minimaler Ausgang	
13	MEHRDURCH- LAUF-METER	(C) 100MHz 38kHz (Mod) 10% (AM) 60dB (ANT-Eingang)	Mehrdurchlauf- Meter	100MHz	X02-1210 L16,17,18	Maximaler Ausschlag	
14	DIGITAL FREQUENZAN- ZEIGE	(A) 100,00MHz 0 (Hub) 20dB (ANT-Eingang)	Digital-anzeige	MONO 100MHz	X13-3660 VR1	100,0MHz	



ABGLEICH

ANMERKUNG: Die Verzerrung und die Trennung sind in der Fabrik mit Hilfe von Präzisionsinstrumenten eingestellt. Wenn möglich sollten die folgenden Einstellungen vermieden werden, da gewöhnliche Meßinstrumente nicht präzis

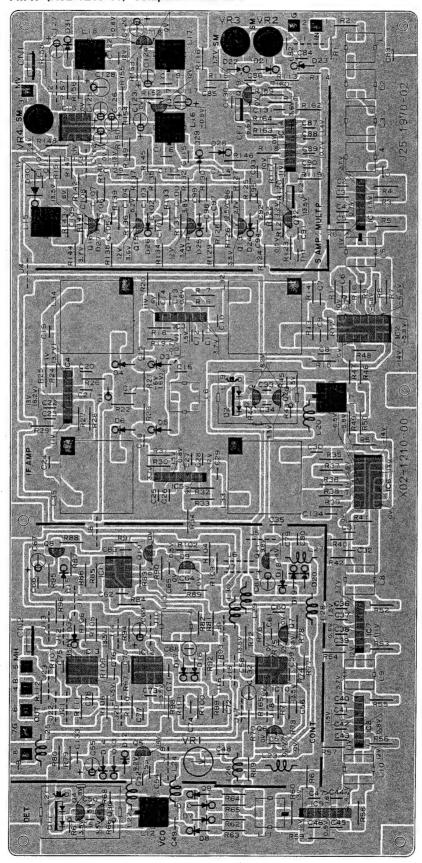
genug sind, um die Verzerrung, die Phase und den Rauschabstand genau zu meßen. Als Referenz ist hier die Abgleichmethode mit Hilfe von FM-SG: MSG-2901 und MPX-SG: MSG-211G angegeben.

NR.	GEGENSTAND	EINGANGS- EINSTELLUNG	AUSGANGS- EINSTELLUNG	TUNER- EINSTELLUNG	ABGLEICH- PUNKTE	ABGLEICHEN FUR	ABB.
15	VERZERRUNG (MONO)	(A) 100MHz 1kHz ± 75kHz (Hub) 80dB (ANT-Eingang)	(B)	100MHz	X02-1210 L1,2	Minimaler Klirrfaktor.	
16	VERZERRUNG (STEREO WIDE)	(C) 100MHz 1kHz ± 68,25kHz (Hub) Wahlschalter : L oder SUB 80dB (ANT-Eingang)	(B)	100MHz	X02-1210 L32 (farbloser Kern)	Minimaler Klirrfaktor.	
17	VERZERRUNG (STEREO NARROW)	(C) 100MHz 1kHz ± 68,25kHz (Hub) Wahlschalter : L. oder SUB 80dB (ANT-Eingang)	(B)	100MHz NARROW	X02-1210 L34 (farbloser Kern)	Minimaler Klirrfaktor.	
18	KANALTREN- NUNG (WIDE)	(C) 100MHz 1kHz ± 68,25kHz (Hub) Wahlschalter : L oder R 60dB (ANT-Eingang)	(B)	100MHz	X04-1150 VR8 (L) VR10 (R)	Minimales Übersprechen.	
19	KANALTREN- NUNG (NARROW)	(C) 100MHz 1kHz ± 68,25kHz (Hub) Wahlschalter : L oder R 60dB (ANT-Eingang)	(B)	100MHz NARROW	X04-1150 VR9 (L) VR11 (R)	Minimales Übersprechen.	
20	SCA (1)	(C) 100MHz 73kHz ± 6,7kHz (Hub) 60dB (ANT-Eingang)	(B)	100MHz	X04-1150 VR6 (L) VR7 (R)	Minimaler Ausgang.	
21	SCA (2)	(C) 100MHz 65kHz ± 6,5kHz (Hub) 60dB (ANT-Eingang)	(B)	100MHz	X04-1150 L2	Minimaler Ausgang.	



PC BOARD

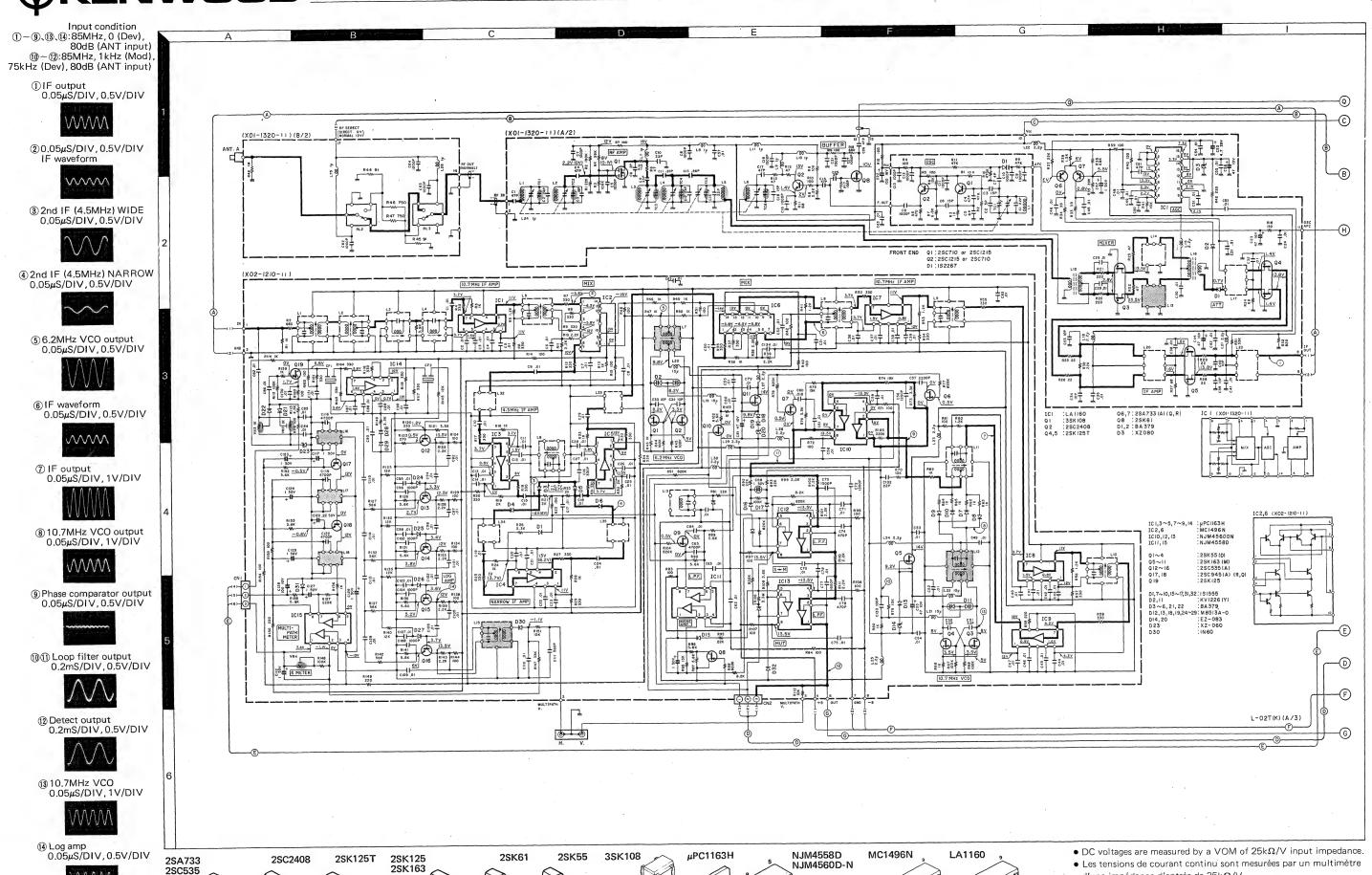
FM IF (X02-1210-11) Component side view



Refer to the schematic diagram for the values of resistors and capacitors. The PC board drawing is viewed from the side easy to check.

2SC945

FM STEREO TUNER



2SK163

NJM4560D-N

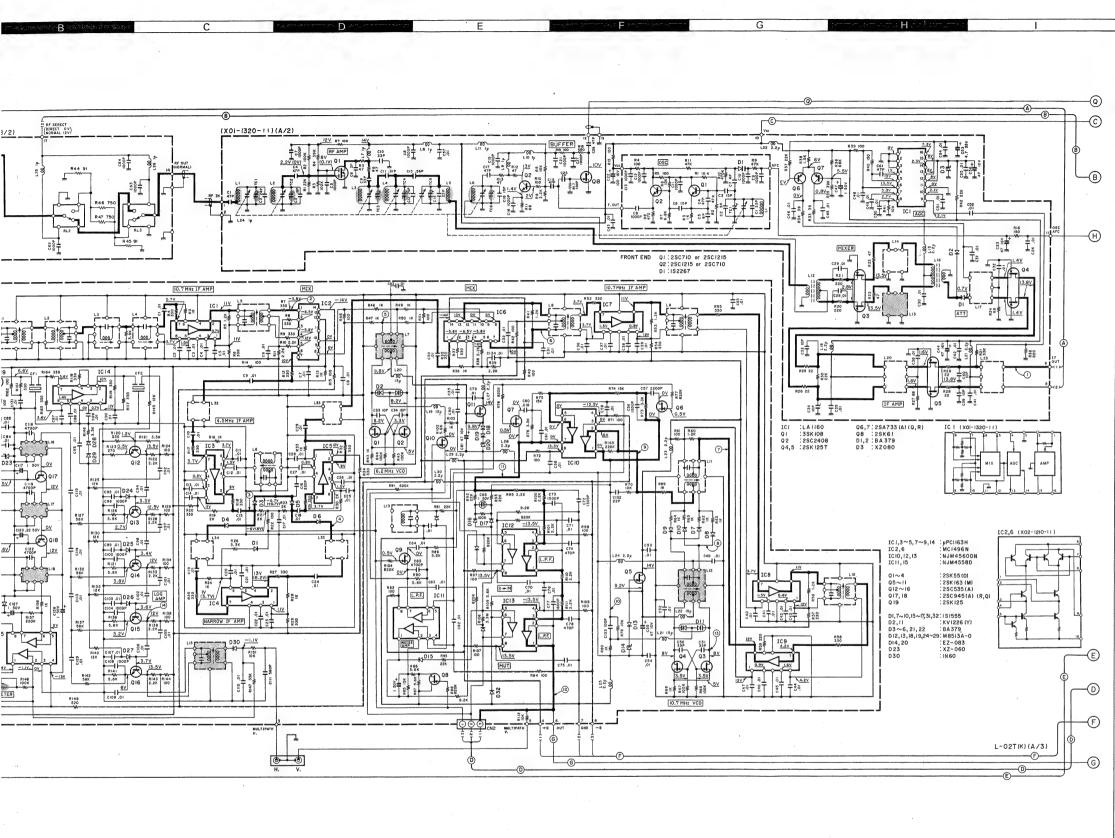
d'une impédance d'entrée de $25k\Omega/V$.

von $25k\Omega/V$ Eingangs-Impedanz gemessen.

• Die Gleichstrom-Spannungen werden durch ein Vielfachmeßgerät

FM STEREO TUNER







SPECIFICATIONS

FERFORMANC	· E				
Usable Sensitivit	y			10.7 dBf (0.95	μV)
50dB Quieting St	ensitivit	ty (Mon	0)	16.3 dBf (1.8 g	(V)
		(Stere	0)	39.2 dBf (25 µ	V)
Signal to Noise R	atio	(Mono)	95 dB	
		(Stere	o)	85 dB	
Total Harmonic D	istortic	on (85 d	Bf)	WIDE	NARROW
(Mono)	100 Hz			0.006%	0.01%
1	1,000 H	lz		0.006%	0.02%
(5,000 H	lz		0.02%	0.2%
1	5,000	Hz		0.02%	0.02%
	60 Hz ~	10,000	Hz	0.02%	0.2%
				0.02%	0.1%
1	H 000,	lz		0.01%	0.1%
•	6,000 H	lz		0.03%	0.2%
				0.04%	0.2%
Capture Ratio					3.8 dB
		tivity		45 dB (± 400 l	kHz) 65 dB (± 300 kHz)
Stereo Separation					
				55 dB	45 dB
6	i0 Hz ~	10,000	Hz	45 dB	35 dB
				40 dB	•
					00 Hz + 0.2 dB - 0.5 dB
Spurious Respons					
Image Response					
IF Response Ratio					
AM Suppression					
Sub Carrier Produ					
				75 ohms unbal	anced
Output Level at 1	kHz 10				
				0.75V, less tha	
				1.5V, less than	1 ohm (Sigma drive)
Multipath Output				0.5V, 3k ohms	
				0.01V, 10k ohn	ns
Tuning scale adju	stment	range.		± 2 mm	
GENERAL					
Power Requireme	nt			60 Hz, 120V (L	I.S.A. and Canada models)
					where incorporates switch
				to accomodate	50/60 Hz, 120/220-240V
Power Consumpt					
Dimensions				W: 480 mm (
				D: 423 mm (1	6-5/8")
Weight (Net)				12.4 kg (27.3 lb)

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

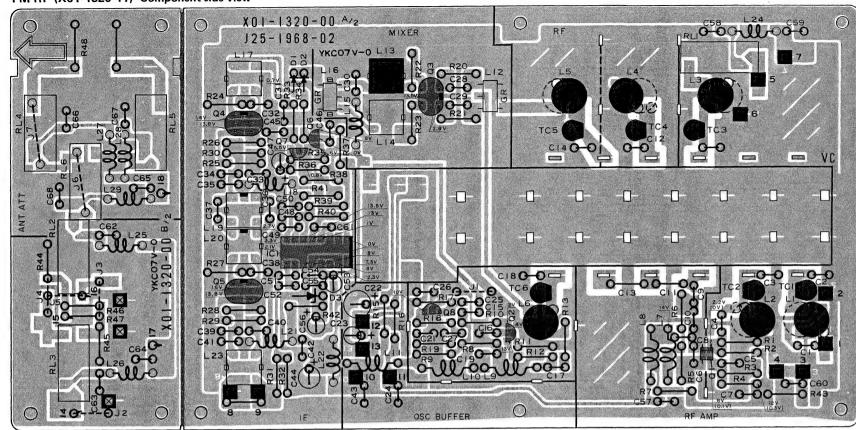
Kenwood poursuit une politique de progrès constants en ce qui concerne développement. Pour cette raison, les spécifications sont sujettes à modificati sans préavis.

Kenwood strebt ständige Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

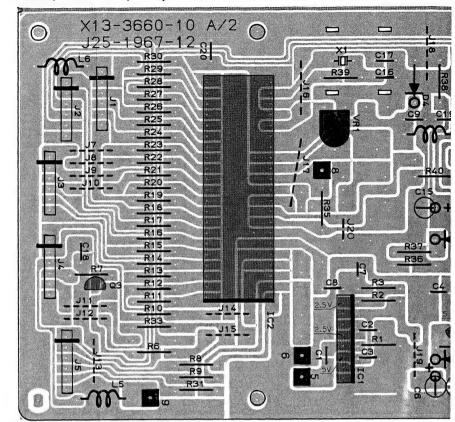
- DC voltages are measured by a VOM of $25k\Omega/V$ input impedance. • Les tensions de courant continu sont mesurées par un multimètre
- Les tensions de courant continu sont mesurées par un multimètre d'une impédance d'entrée de $25k\Omega/V$.
- ullet Die Gleichstrom-Spannungen werden durch ein Vielfachmeßgerät von 25k Ω/V Eingangs-Impedanz gemessen.

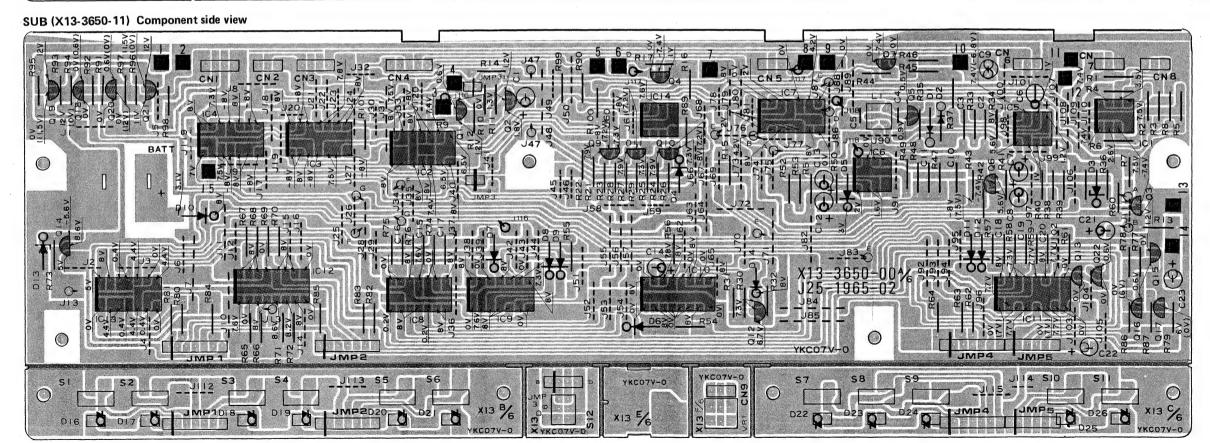
PC BOARD

FM RF (X01-1320-11) Component side view



SUB (X13-3660-10) Component side view



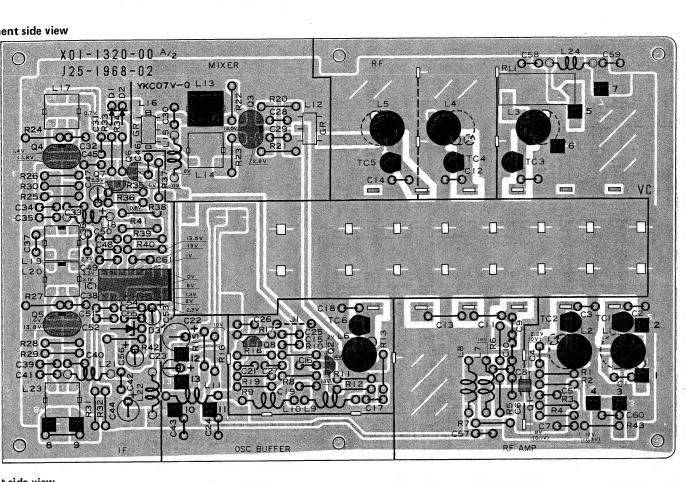


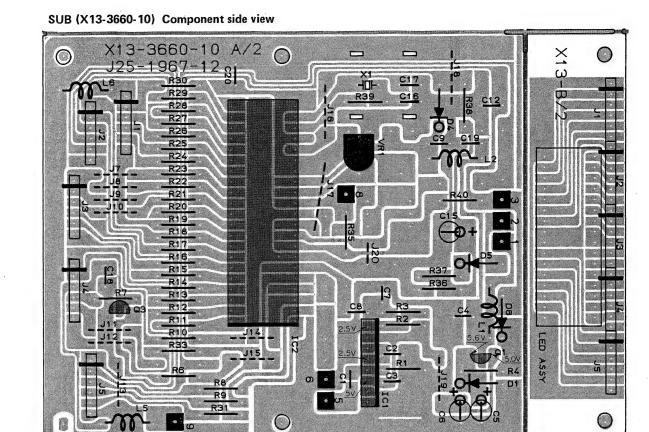
Refer to the schematic diagram fot the PC board drawing is viewed from

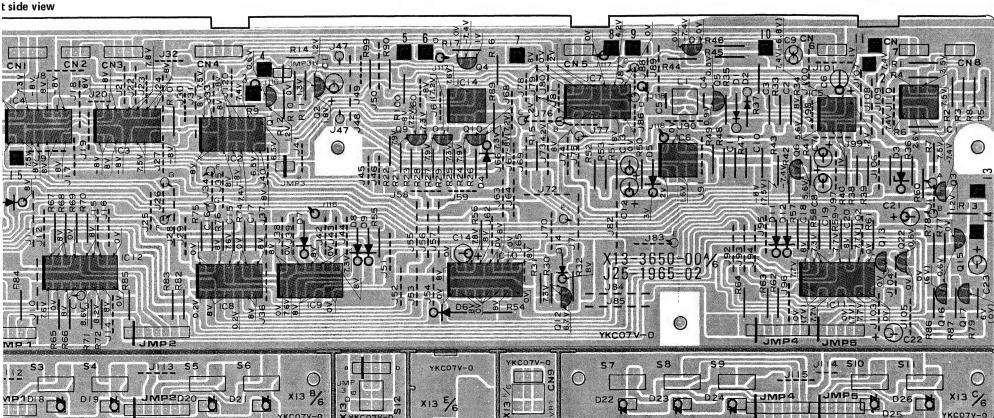
L-02T L-02T

L-02T L-02T

PC BOARD



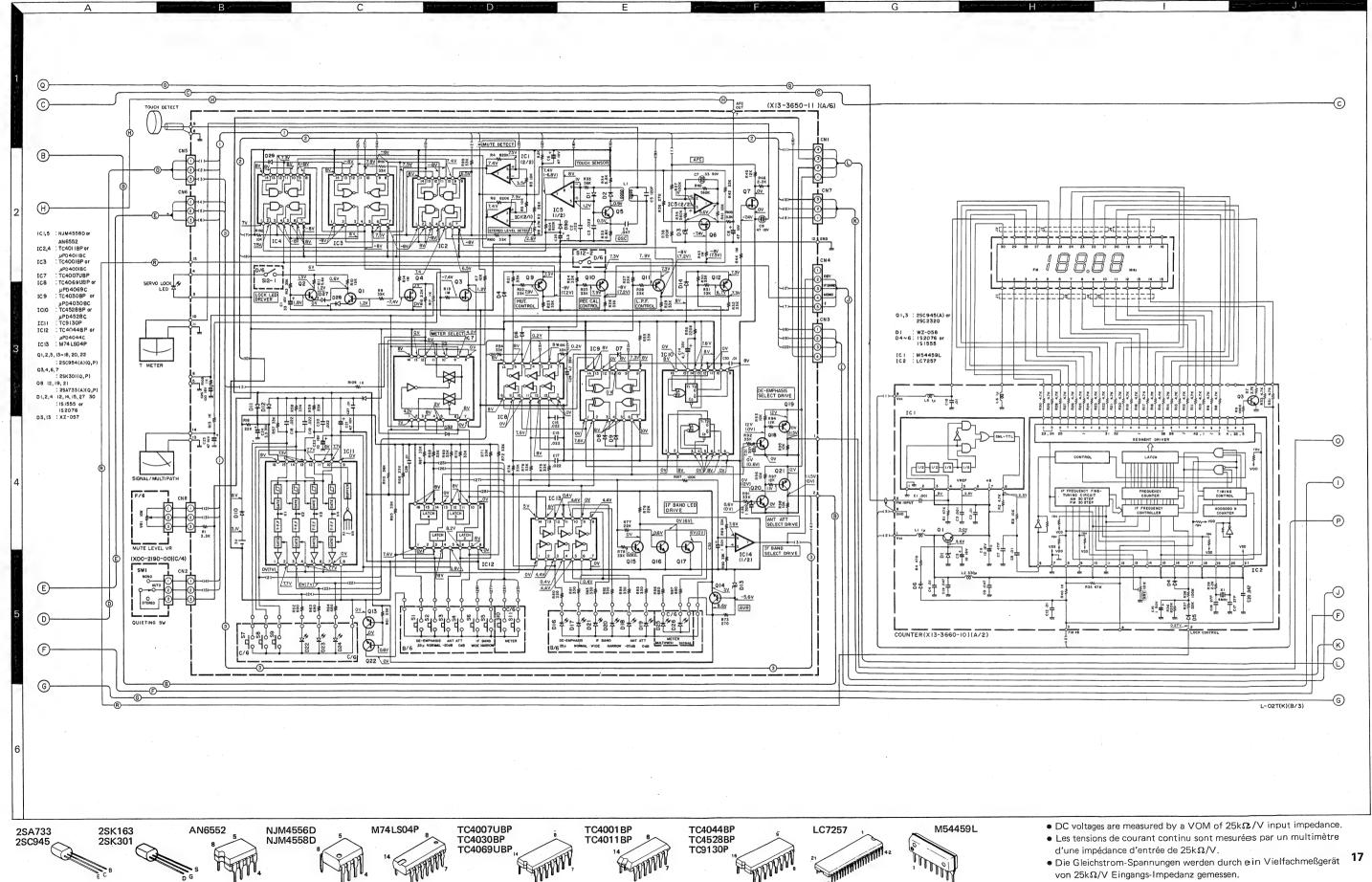




Refer to the schematic diagram fot the values of resistors and capacitors. The PC board drawing is viewed from the side easy to check.

2SK301





• Les tensions de courant continu sont mesurées par un multimètre

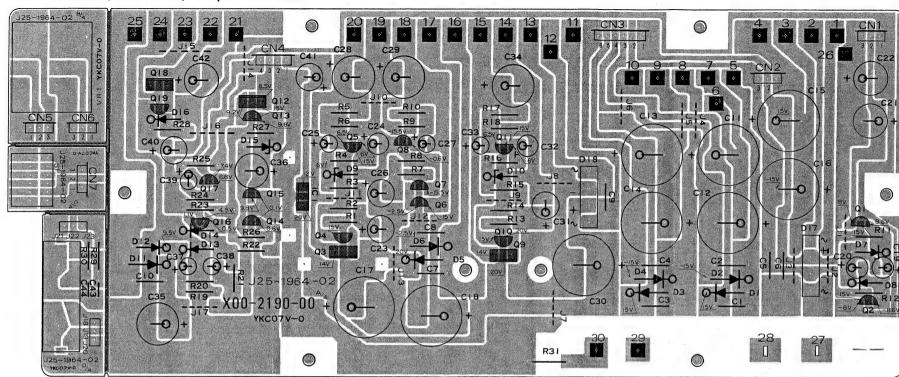
d'une impédance d'entrée de $25 k\Omega/V$.

von $25k\Omega/V$ Eingangs-Impedanz gemessen.

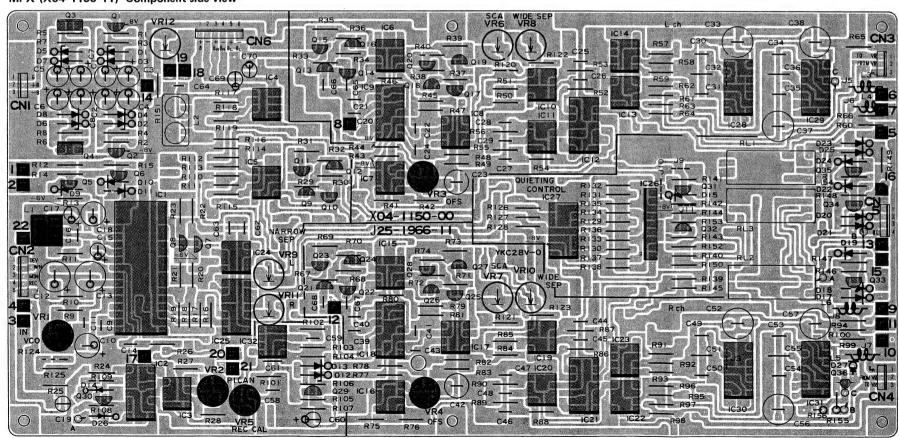




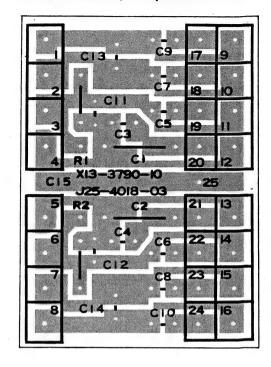
POWER SUPPLY (X00-2190-11) Component side view

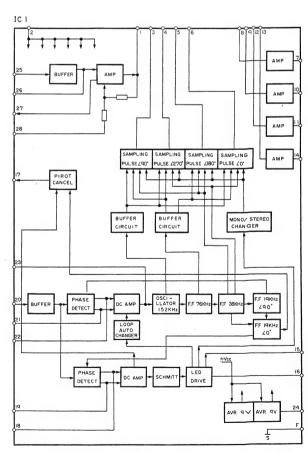


MPX (X04-1150-11) Component side view



SUB (X13-3790-10) Component side view





Refer to the schematic diagram for the values of resistors and capacitors. The PC board drawing is viewed from the side easy to check.

2SA850

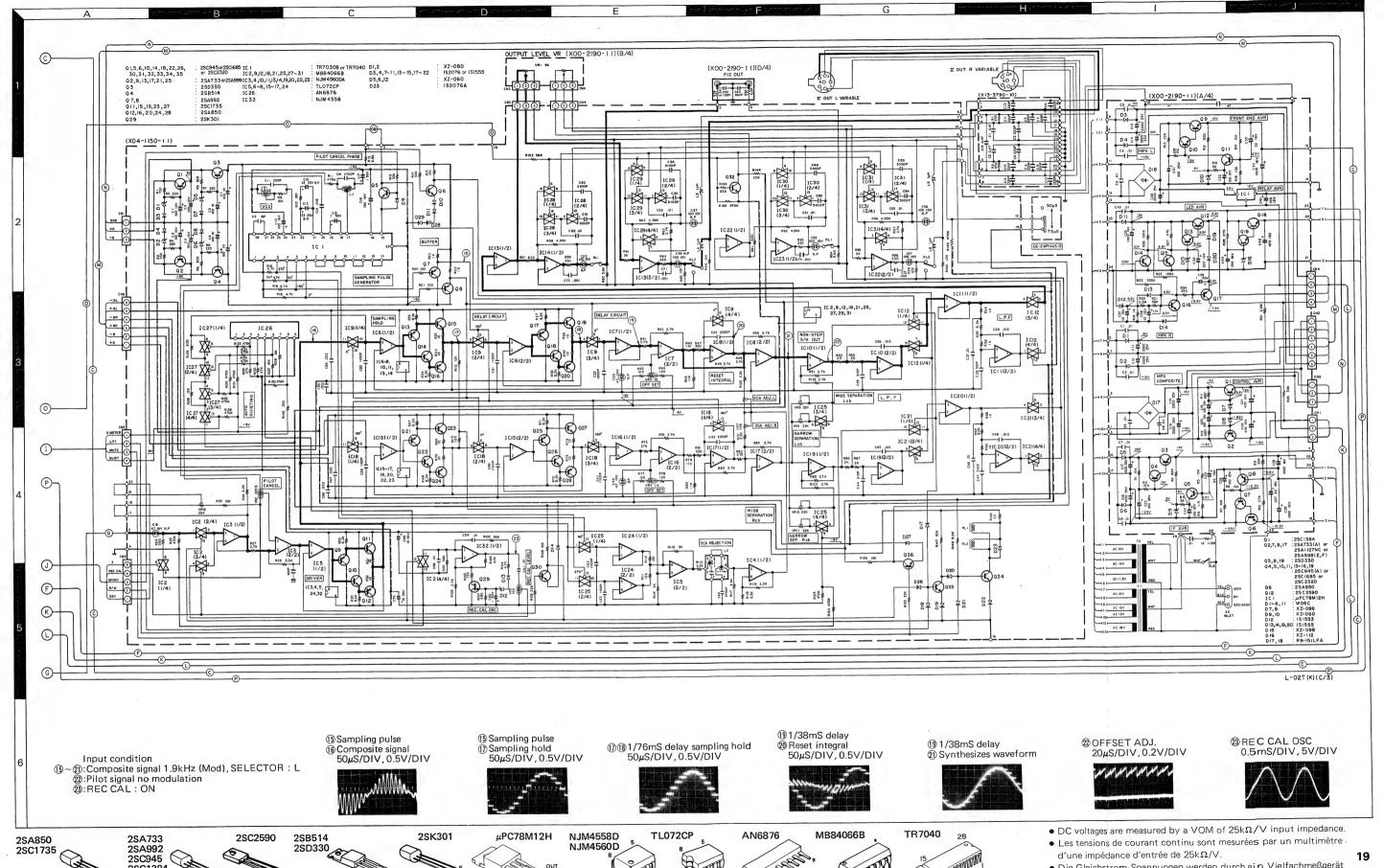
2SC1735

2SC945

2SC1384

FM STEREO TUNER





NJM4560D

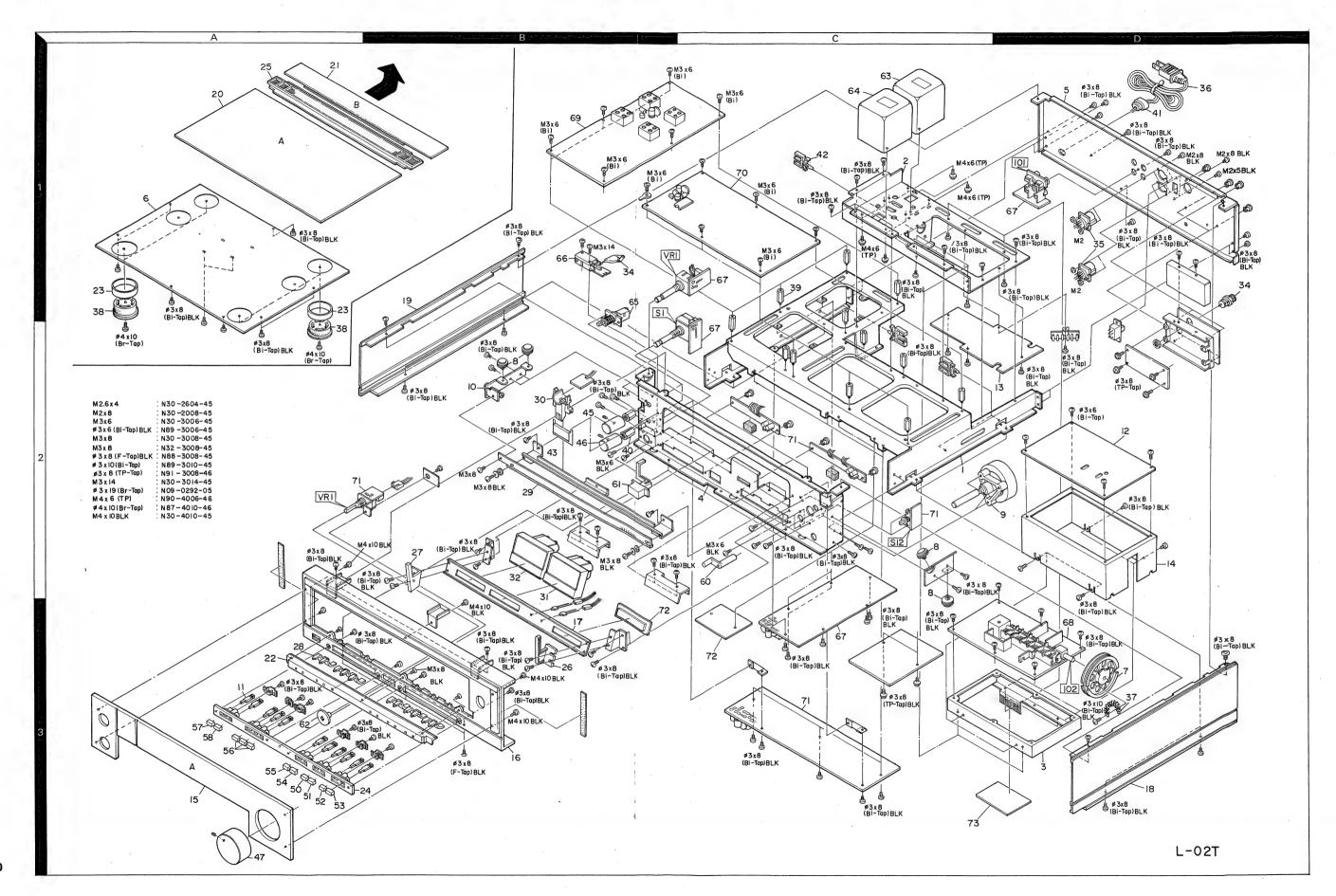
• Les tensions de courant continu sont mesurées par un multimètre

• Die Gleichstrom-Spannungen werden durch ein Vielfachmeßgerät

d'une impédance d'entrée de $25k\Omega/V$.

von $25k\Omega/V$ Eingangs-Impedanz gemessen.

L-02T L-02T EXPLODED VIEW



PARTS LIST

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

INSTRUCTION FOR PARTS LIST Parts No. * 4 * 4 部品名/規格 MAIN CHASSIS ASS'Y FRONT CHASSIS FLUOR DISPLAY HOLDER FRONT PANEL AZO-1666-08 FRENT PANEL ASS'Y \$42-3201-08 PUSH \$W.(SELECTOR) 111 * \$01-1204-08 ROTARY \$W.(FUNC.) 105 * \$51-2204-08 RELAY FIG.104 *M

- ① Exploded view drawing No.
- 2 Position in exploded view.
- ③ Symbol of new parts
- Area to which parts are shipped. Example: A20-1666-08 is the part No. of FRONT PANEL ASS'Y for the "K" type products (for U.S.A.). When this column is blank, it means that the same type of parts (same parts No.) are used for the products shipped to all areas.
- 3 Reference No. in schematic diagram.
- Abbreviation of "ceramic capacitor" All capacitors and resistors are listed using abbreviations. Abbreviations
- * Abbreviations of capacitors (Parts No. with initial letter "C"). ELECTRO Electrolytic capacitor LL-ELEC Low leak electrolytic capacitor NP-ELEC Non-pole electrolytic capacitor MICA Mica capacitor POLYSTY Polystyrene capacitor MYLAR Mylar capacitor CERAMIC Ceramic capacitor TANTAL Tantalum capacitor MF Metallized film capacitor Metallized paper capacitor
- OIL Oil capacitor
 The unit ''UF'' is used in lieu of ''μF'
- * Abbreviations of resistors (Parts No. with initial letters "R"). RC Carbon composition resistor FL-PROOF RD Flame-proof carbon film resistor
- Wire wound power resistor FL-PROOF RS Flame-proof metal oxide film resistor
- . Metal film resistor FUSE-RESIST Resistor with fuse function . Rated wattage 1/8W 2B 1/4W . Rated wattage . Rated wattage 1/2W 1W . Rated wattage. 2W 3D . Rated wattage . Rated wattage 3W . Rated wattage 4W
- . Rated wattage 5W All resistor values are indicated with the unit (Ω) omitted.
- Abbreviations common to capacitors and resistors. $\pm 0.25 pF$ (Used for capacitors only) ± 0.5pF (Used for capacitors only)
-±5%±10%±20%
- + 80%, 20%(Used for capacitors only) + 100%, - 0%(Used for capacitors only) Resistors RD (carbon composition resistors) are not listed in the parts list. For values, refer to the schematic diagram.

Teil	e ohne Pa	ı rts No . werden nicht geliefert.	
Re	ef. No.	Parts No. Description	Re- marks
参	照番号	部品番号 部品名/規格	備考
		L-02T (UNIT)	
1 2 3 4 5	2 C 1 C 3 D 2 C 1 D	NO STOCK MAIN CHASSIS NO STOCK SUB CHASSIS NO STOCK METALLIC FRAME NO STOCK SUB PANEL NO STOCK REAR PANEL	
6 7 8 9	1 A 3 D 2 C 3 D 2 B	NO STOCK BOTTOM PLATE NO STOCK PULLEY NO STOCK PULLEY ASSY NO STOCK DIAL SHAFT ASSY NO STOCK SHAFY ASSY	
11	3 A	NO STOCK SHAFT	
15 16 17 18 19	3 A 3 B 3 A 3 D 1 B	A20-3298-03 A20-3158-03 FRONT PANEL ASSY (B) A21-0380-03 A50-0099-03 A50-0100-03 DRESSING PANEL SIDE PLATE (R) SIDE PLATE (L)	
20 21	1 A 1 A	A52-0049-03 TOP PLATE (A) A52-0050-03 TOP PLATE (B)	
-		B59-0018-00 B46-0055-30 B46-0061-30 B46-0062-30 B46-0063-13 WARRANTY CARD B46-0063-13 WARRANTY CARD MILITARY	P K U
-	:	B46-0064-20 B46-0078-03 B50-4322-00 B50-4322-00 B50-4323-00 INSTRUCTION MANUAL B50-4323-00 INSTRUCTION MANUAL	X E *K U *P
- 22 23 24	38 1A 3A	B50-4323-00 B50-4324-00 B01-0202-03 B07-0249-04 B07-1009-13 ESCUTCHEON (FOOT) ESCUTCHEON (PUSH)	MX *E
25 26 27 28 29	1 A 3 B 2 B 3 A 2 B	B07-1010-03 B07-1014-04 B07-1015-04 B19-0233-04 B20-0518-04 DIAL SCALE ASSY	
30 31 32	2 B 2 B 2 B	B21-0051-03 B31-0320-05 B31-0323-05 METER (T) METER (S/M)	-
<u>.</u>		C46-1747-46 MYLAR 0.47UF K C55-1722-38 CERAMIC 0.022UF Z C91-0079-05 CERAMIC 0.01UF AC125	,
		E03-0102-05 E07-0603-05 E14-0007-05 E19-0211-05 E21-0007-05 TERMINAL	E
34 35 36	10 10 10	E22-0416-05	KP
36 36 36	1 D 1 D 1 D	E30-1305-15 E30-1329-05 E30-1342-05 POWER CORD E30-1342-05 POWER CORD	ÚM E X
37	3 D	G01-0368-04 COILED SPRING	

- E: Scandinavia & Europe H: Audio Club K: USA P: Canada
- S: South Africa T: England U: PX (Far East, Hawaii)
- UE: AAFES (Europe) X: Australia M: Other Areas

PARTS LIST

★ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Re	f. No.	Parts No.	Description	Re-
	照番号	部品番号	部品名/規格	marks 備考
-		H01-3393-04 H10-1604-02 H20-0447-04 H25-0078-04 H25-0096-04	CARTON BOX POLYSTYRENE FIXTURE COVER BAG (235X315) BAG	*
38 39 40 41 42	1A 1C 2B 1D 1C	J02-0098-04 J32-0265-04 J32-0271-04 J42-0083-05 J61-0024-05	FOOT STUD STUD BUSHING WIRE BAND	
43 45 46 47 51 52	28 28 28 3 A 3 A 3 A	J90-0107-03 K21-0391-04 K21-0392-04 K21-0393-04 K27-0725-04 K27-0733-04	RAIL KNOB OUTPUT KNOB QUIETING KNOB TUNING KNOB NORMAL KNOB O DB	* * * *
53 54 55 56 57	3 A 3 A 3 A 3 A 3 A	K27-0734-04 K27-0728-04 K27-0735-04 K27-0730-04 K27-0731-04	KNOB +20 DB KNOB MULTIPATH KNOB 25U KNOB-ON/OFF KNOB WIDE	* * * * * * * * * * * * * * * * * * * *
58 59 60 61 62	3 A 3 A 2 C 2 B 3 A	K27-0732-04 K27-0736-04 K27-0737-04 K27-0738-04 K29-0465-04	KNOB NARROW KNOB SIGNAL KNOB LOCK KNOB POWER KNOB MUTE LEVEL	* * * * * *
63 64	1 C 1 C	L01-2594-05 L01-2604-05	POWER TRANS POWER TRANS	*
65 66	1 B 1 B	\$31-2061-05 \$40-0006-05 \$49-2003-05	SLIDE SWITCH PUSH SWITCH SENSITIVE SWITCH	
-		T90-0122-05 T90-0202-05	ANTENNA FM INDOOR ANTENNA 152076A	
67 68 69 70 71	3 C 3 D 1 B 1 B 1 C	x00-2190-11 x01-1320-11 x02-1210-11 x04-1150-11 x13-3650-11	POWER SUPPLY PCB ASSY FM RF PCB ASSY FM IF PCB ASSY MPX PCB ASSY SUB PCB ASSY	* * *
72	3 C	x13-3660-10 VER SUPPLY (SUB PCB ASSY	.
C1 C11 C17 C19 C21	-10 -16 ,18 ,20 ,22	C54-2710-39 C90-0594-05 C90-0598-05 C90-0582-05 C90-0583-05	CERAMIC 0.01UF P ELECTRO 3300UF 25WV ELECTRO 1000UF 35WV ELECTRO 100UF 10WV ELECTRO 470UF 10WV	
C23 C24 C25 C26 C27		C90-0592-05 C90-0582-05 C90-0585-05 C90-0592-05 C90-0585-05	ELECTRO 100UF 25WV ELECTRO 100UF 10WV ELECTRO 22UF 16WV ELECTRO 100UF 25WV ELECTRO 22UF 16WV	
C28 C30 C31 C32 C33	,29	C90-0591-05 C90-0593-05 C90-0592-05 C90-0582-05 C90-0585-05	ELECTRO 1000UF 16WV ELECTRO 3300UF 25WV ELECTRO 100UF 25WV ELECTRO 100UF 10WV ELECTRO 22UF 16WV	
¢34	,35	c90-0591-05	ELECTRO 1000UF 16WV	

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D15				V 1										-																	
D17		18 20		V 1										1				F	A												
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9 910	,	11		V	3	-(9	4	5•	- 8	0	2	Š		9	45	5 ()	((,	P)								
112				V	3	- 2	25	9	0 -	- 0	0	2	S	С	2 :	5 9	90	1													
113	•	1 4		VO																		P K									
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018				VC										D				•													
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PARTS LIST

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Ref. No.	Parts No.	Description		Ref. No.	Parts No.	Description	1	Re-
参照番号	部品番号	部品名/規格	marks 備考	参照番号	部品番号	部品名/規	1 格	marks
C15 C16 C17 C18 C19	C71-1747-05 C52-1710-26 C71-1747-05 C63-1715-05 C52-1710-26	CERAMIC 47PF J CERAMIC 0.001UF K CERAMIC 47PF J CERAMIC 15PF J CERAMIC 0.001UF K	R 4 R 4	3	R42-1215-15 R42-1222-15 R42-1210-15 R40-8310-68	FL-PROOF RD150 FL-PROOF RD220 FL-PROOF RD100 RC 10M	J 2E J 2E J 2E M 2H	
C21 C22 C23 C24 C25	C52-1710-26 C90-0588-05 C90-0587-05 C55-1710-38 C71-1702-01	CERAMIC 0.001UF K ELECTRO 100UF 16wV ELECTRO 47UF 16wV CERAMIC 0.01UF Z CERAMIC 2PF C	D1 D3 IC Q1	1	\$51-1020-05 v11-1263-06 v11-4163-46 v30-0709-10 v09-0161-10 v03-2408-00	RELAY BA379 XZ-080 LA1160 3SK108 2SC2408		*
C27 C28 -32 C33 ,34 C35	C52-1710-26 C55-1710-38 C71-1710-02 C55-1710-38	CERAMIC 0.001UF K CERAMIC 0.01UF Z CERAMIC 10PF D CERAMIC 0.01UF Z	Q3 Q6 Q8	-5 -7	V09-0136-20 V01-0733-30 V09-0124-10	2SK125T 2SA733(A)(R,Q) 2SK61	:	
c36 .37	c63-1707-02	CERAMIC 7PF D			IF (X02-1210			1
C38 C39 ,40 C41 -43 C44	C55-1710-38 C71-1710-02 C55-1710-38 C90-0587-05	CERAMIC 0.01UF Z CERAMIC 10PF D CERAMIC 0.01UF Z ELECTRO 47UF 16WV	C3		C55-1710-38 C71-1733-15 C55-1710-38 C63-1710-02 C55-1710-38	CERAMIC 0.01UF CERAMIC 330PF CERAMIC 0.01UF CERAMIC 10PF CERAMIC 0.01UF	Z J Z D	
C45 ,46 C47 C48 =52 C53 C54 ,55	C55-1710-38 C90-1201-05 C55-1710-38 C90-0595-05 C55-1710-38	CERAMIC 0.01UF Z ELECTRO 1UF 50WV CERAMIC 0.01UF Z ELECTRO 4.7UF 35WV CERAMIC 0.01UF Z		0 /51 2 -54 5	C55-1710-38 C63-1733-05 C55-1710-38 C90-0581-05 C46-1712-25	CERAMIC 0.01UF CERAMIC 33PF CERAMIC 0.01UF ELECTRO 47UF MYLAR 0.0012UF	Z J Z 10 w V J	
C56 C57	c90-0581-05	ELECTRO 47UF 10WV CERAMIC 0.01UF Z	C S	7	c46-1722-25	MYLAR 0.0022UF	J	
C61	c71-1747-05	CERAMIC 47PF J	C6		C55+1710-38 C46-1718-35 C46-1710-35 C55-1710-38	CERAMIC 0.01UF MYLAR 0.018UF MYLAR 0.01UF CERAMIC 0.01UF	Z J J Z	
C62 -64 TC1 -6 L1 L2 -4 L5 L6 L7 -11	C52-1710-26 C05-0302-05 L31-0381-05 L31-0380-05 L31-0380-05 L32-0234-05 L33-0025-05	CERAMIC 0.001UF K TRIMMER CAPACITOR RF COIL RF COIL OSCILLATING COIL CHOKE COIL	C 6 C 6 C 6	6 7	C46-1710-35 C46-1747-25 C46-1710-35 C90-1201-05 C26-1410-57	MYLAR 0.01UF MYLAR 0.0047UF MYLAR 0.01UF ELECTRO 1UF NP-ELEC 1UF CERAMIC 0.01UF	j	
L12 L13 ,14 L15 L16 L17	L39-0098-05 L30-0381-05 L40-2292-41 L39-0098-05 L30-0343-05	COIL IFT INDUCTOR COIL IFT	C7 C7 C7	2 3 4 5 ,76	C47-1713-25 C47-1715-25 C47-1747-15 C55-1710-38	POLYSTY 1300PF POLYSTY 1500PF POLYSTY 470PF CERAMIC 0.01UF	J J Z	
L18 L19 ,20 L21 ,22 L23 L25 ,26	L40-2292-41 L30-0341-05 L40-2292-41 L30-0343-05 L40-1092-41	INDUCTOR IFT INDUCTOR IFT INDUCTOR	C7 C8 C8	8 9 ,80 1	C47-1747-15 C55-1710-38 C90-0581-05 C55-1710-38	POLYSTY 470PF CERAMIC 0.01UF ELECTRO 47UF CERAMIC 0.01UF	J Z 10WV Z	
R5 ,6 R7 R11 R12 ,13 R15	R42-1247-05 R42-1210-15 R42-1268-05 R42-1247-05 R42-1212-15	FL-PROOF 47 J 2 FL-PROOF RD100 J 2 FL-PROOF RD68 J 2 FL-PROOF 47 J 2 FL-PROOF RD120 J 2	C9 C9 C1	2 -95	C55-1710-38 C46-1710-25 C55-1710-38 C46-1710-25	CERAMIC 0.01UF MYLAR 0.001UF CERAMIC 0.01UF MYLAR 0.001UF	2 J Z J	-
R16 R19 R20 ,21 R22 ,23 R24	R42-1215-15 R42-1210-15 R48-2270-03 R42-1247-05 R42-1268-05	FL-PROOF RD150 J 2 FL-PROOF RD100 J 2 RN 270 F 2 FL-PROOF RD47 J 2 FL-PROOF RD68 J 2	C1 C1 C1	04 05-107 08 09,110	C46-1710-25 C55-1710-38 C46-1710-25 C55-1710-38	MYLAR 0.001UF CERAMIC 0.01UF MYLAR 0.001UF CERAMIC 0.01UF	J Z J Z	
R25 ,26 R27 R28 ,29 R33 ,34 R39	R42-1222-05 R42-1268-05 R42-1222-05 R42-1239-05 R42-1210-15	FL-PROOF RD22 J 2 FL-PROOF RD68 J 2 FL-PROOF RD22 J 2 FL-PROOF RD39 J 2 FL-PROOF RD100 J 2	C1 C1 C1	12 13-115 16 17	C90-1201-05 C46-1710-35 C47-1747-25 C90-1201-05 C47-1747-25	ELECTRO 1UF MYLAR 0.01UF POLYSTY 4700PF ELECTRO 1UF POLYSTY 4700PF	50wV J 50wV	

PARTS LIST

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Ref. No.	Parts No.	Description	Re-
参照番号	部品番号	部品名/規格	marks 備考
C120 C122 C123-127 C128 C129	C90-1201-05 C47-1747-25 C90-1201-05 C90-0582-05 C46-1710-35	ELECTRO 1UF 50WV POLYSTY 4700PF J ELECTRO 1UF 50WV ELECTRO 100UF 10WV MYLAR 0.01UF J	
C130,131 C132 C133 C134 C135	C55-1710-38 C71-1722-05 C47-1710-15 C55-1710-38 C71-1712-15	CERAMIC 0.01UF Z CERAMIC 22PF J POLYSTY 100PF J CERAMIC 0.01UF Z CERAMIC 120PF J	
CF1 ,2 L1 L2 L3 L4	L72-0126-05 L30-0375-05 L30-0376-05 L30-0377-05 L30-0378-05	CERAMIC FILTER IFT IFT IFT IFT	
L5 L6 L7 L8 L9 -10	L30-0341-05 L30-0343-05 L32-0274-05 L30-0343-05 L30-0282-05	IFT IFT OSCILLATING COIL IFT IFT	
L11 L12 L13 L15 L16 -18	L30-0341-05 L32-0275-05 L40-1035-05 L30-0343-05 L31-0285-05	IFT OSCILLATING COIL INDUCTOR IFT RF COIL	
L19 L20 L21 L22 L23 -25	L40-1501-12 L40-1501-13 L40-1501-12 L40-1501-13 L40-2292-13	INDUCTOR INDUCTOR INDUCTOR INDUCTOR INDUCTOR INDUCTOR	
L27 -30 L32 ,33 L34 ,35	L40-2292-13 L79-0155-05 L79-0156-05	INDUCTOR FILTER FILTER	
R14 ,15 R22 R40 R42 R61	R42-1210-15 R42-1210-15 R42-1210-15 R42-1210-15 R42-1210-15	FL-PROOF R0100 J 2E FL-PROOF R0100 J 2E FL-PROOF R0100 J 2E FL-PROOF R0100 J 2E FL-PROOF R0100 J 2E	
R71 ,72 R83 ,84 R97 ,98 R107,108 R116	R42-1210-15 R42-1210-15 R42-1210-15 R42-1210-15 R42-1210-15	FL-PROOF RD100 J ZE	
R124 R129 R134 R138 R144	R42-1210-15 R42-1210-15 R42-1210-15 R42-1210-15 R42-1210-15	FL-PROOF RD100 J 2E FL-PROOF RD100 J 2E FL-PROOF RD100 J 2E FL-PROOF RD100 J 2E FL-PROOF RD100 J 2E	
R149,150 R154,155 R160 R162 VR2,3	R42-1222-15 R42-1210-15 R42-1210-15 R42-1210-15 R12-1038-05	FL-PROOF RD220 J 2E FL-PROOF RD100 J 2E FL-PROOF RD100 J 2E FL-PROOF RD100 J 2E TRIMMING POT. 1K	
VR4	R12-5031-05	TRIMMING POT. 220K	
D1 D2 D3 -6 D7 -10	v11-0076-05 v11-7703-80 v11-1263-06 v11-0076-05 v11-7703-80	1\$1555 KV1226(Y) BA379 1\$1555 KV1226(Y)	
D13	V11-0319-05 V11-4112-80	M8513A-0 EZ-083	

Ref. No.	Parts No.	Description	Re-
参照番号	部品番号	部品名/規格	marks
D15 -17	v11-0076-05	1s1555	
D18 ,19	v11-0319-05	M8513A-0	
D20	v11-4112-80	Ez-083	
D21 ,22	v11-1263-06	BA379	
D23	v11-4101-20	Xz-060	
D24 -29	V11-0319-05	M8513A-0	
D30	V11-0051-05	1N60	
D31 -35	V11-0076-05	1s1555	
IC1	V30-0524-10	Upc1163H	
IC2	V30-0268-20	Mc1496N	
103 -5	V30-0524-10	UPC1163H	
106	V30-0268-20	MC1496N	
107 -9	V30-0524-10	UPC1163H	
1010	V30-0344-40	NJM4560D+N	
1011	V30-1020-26	NJM4558D	
IC12,13	V30-0344-40	NJM4560D-N	
IC14	V30-0524-10	UPC1163H	
IC15	V30-1020-26	NJM4558D	
Q1 -4	V09-0109-05	2SK55(D)	
Q5 -11	V09-0144-11	2SK163(M)	
Q12 -16	V03-0104-05	2sc535(A)	
Q17 -18	V03-0945-81	2sc945(A)(R,Q)	
Q19	V09-0136-10	2sk125	
N	/IPX (X04-1150)-11)	
C1 -8	C90-0582-05	ELECTRO 100UF 10WV	
C9	C71-1718-05	CERAMIC 18PF J	
C10	C90-0588-05	ELECTRO 100UF 16WV	
C11	C47-1730-15	POLYSTY 300PF J	
C12	C25-1433-67	LL-ELEC 33UF 25WV	
C13 C14 C15 C16 C17	C25-1422-67 C46-1718-35 C90-1201-05 C47-1747-25 C90-1201-05	LL-ELEC 22UF 25WV MYLAR 0.018UF J ELECTRO 1UF 50WV POLYSTY 4700PF J ELECTRO 1UF 50WV	
C18	C90-0588-05	ELECTRO 100U F 16WV	
C19	C26-1247-57	NP-ELEC 4.7U F 16WV	
C20 -22	C47-1711-25	POLYSTY 1100 PF J	
C23	C26-1047-67	NP-ELEC 47UF 10WV	
C24	C47-1722-25	POLYSTY 2200 PF J	
C25	C47-1791-15	POLYSTY 910PF J	
C26	C46-1715-35	MYLAR 0.015UF J	
C27	C46-1710-35	MYLAR 0.01UF J	
C28	C47-1751-15	POLYSTY 510PF J	
C29	C46-1712-35	MYLAR 0.012UF J	
C30 ,31 C32 C33 C34 ,35 C36	C49-2051-24 C49-2010-34 C26-1010-77 C49-2051-24 C49-2010-34	POLYSTY 0.0051UF G POLYPRO 0.01UF G NP-ELEC 100UF 10WV POLYSTY 0.0051UF G POLYPRO 0.01UF G	
C37 ,38	c26-1010-77	NP-ELEC 100UF 10WV	
C39 -41	c47-1711-25	POLYSTY 110OPF J	
C42	c26-1047-67	NP-ELEC 47UF 10WV	
C43	c47-1722-25	POLYSTY 220OPF J	
C44	c47-1791-15	POLYSTY 910PF J	
C45 C46 C47 C48 C49,50	C46-1715-35 C46-1710-35 C47-1751-15 C46-17.12-35 C49-2051-24	MYLAR 0.015UF J MYLAR 0.01UF J POLYSTY 510PF J MYLAR 0.012UF J POLYSTY 0.0051UF G	
C51	C49-2010-34	POLYPRO 0.01 UF G	
C52	C26-1010-77	NP-ELEC 100UF 10wV	
C53 ,54	C49-2051-24	POLYSTY 0.0051UF G	

PARTS LIST

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Ref. No. 参照番号	Parts No. Description 部品番号 部品名/規格	marks		
C55 C56,57 C58,59 C60 C61	C49-2010-34 POLYPRO 0.01UF G C26-1010-77 NP-ELEC 100UF 10WV C46-1710-35 MYLAR 0.01UF J C90-1201-05 ELECTRO 1UF 50WV C46-1710-35 MYLAR 0.01UF J	備考		
C62 ,63 C64 C65 -68 C69 ,70 C71 -74	C47-1711-25 POLYSTY 1100PF J C49-2047-24 POLYPRO 0.0047UF G C55-1722-38 CERAMIC 0.022UF Z C90-1213-05 ELECTRO 10UF 35WV C46-1710-25 MYLAR 0.001UF J			
- - - - J1	E40-0373-05 E40-0473-05 E40-0573-05 E40-0673-05 E31-1449-05			
J3 J5 -8 J9 J10 ,11	E31-1449-05 CONNECTING WIRE E31-0055-05 CONNECTING WIRE E31-1449-05 CONNECTING WIRE CONNECTING WIRE			
L1 L2 L3 -6	L35-0061-05 MPX COIL L79-0157-05 FILTER L40-1092-41 INDUCTOR			
R 5 8 R 6 2 R 9 2 R 9 6 V R 1	R48-2499-13 R48-2499-13 R48-2499-13 R48-2499-13 R48-2499-13 R12-2024-05 RN 4.99K F 2E TRIMMING POT. 6.8K			
VR2 VR3 .4 VR5 VR6 .7	R12-3051-05 TRIMMING POT. 22K R12-1038-05 TRIMMING POT. 1K R12-3045-05 TRIMMING POT. 10K R12-1038-05 TRIMMING POT, 1K			
RL1 RL2	S51-2037-05 RELAY S51-2408-05 RELAY			
D1 ,2 D3 ,4 D5 ,6 D7 -11	V11-4163-46 V11-0271-05 V11-4101-20 V11-0271-05 V11-4101-20 V11-4101-20 V11-4101-20			
D13 -15 D13 ,14 D17 -22 D21 ,22 D23	V11-0271-05 V11-0271-05 V11-0271-05 V11-0271-05 V11-0271-05 V11-0273-05 V11-0273-05			
D26 -29 D27 -29 IC1 IC2 IC3 ,4	V11-0271-05 V11-0271-05 V30-0784-10 V30-0516-10 V30-0387-10 NJM4560D(A)			
IC5 -8 IC9 IC10,11 IC12 IC13,14	V30-0301-50 V30-0516-10 V30-0387-10 V30-0516-10 V30-0387-10 V30-0387-10 V30-0387-10			
IC15-17 IC18 IC19,20 IC21 IC22,23	V30-0301-50 V30-0516-10 V30-0387-10 V30-0516-10 V30-0516-10 V30-0387-10 MB84066B NJM4560D(A)			
1024 1025 1026	V30-0301-50 V30-0516-10 V30-0697-10 MB84066B AN6876			

Ref. No.	Parts No.	Description	Re- marks
参照番号	部品番号	部品名/規格	備考
IC27 IC27-31 IC29 IC31 IC32	V30-0516-10 V30-0516-10 V30-0516-10 V30-0516-10 V30-0516-10 V30-1020-26	MB84066B MB84066B MB84066B MB84066B NJM4558D	
Q1	V03-0945-80	2SC945(A)(Q,P)	
Q2	V01-0733-40	2SA733(A)(Q,P)	
Q3	V04-0330-20	2SD330(E,F)	
Q4	V02-0514-20	2SB514(E,F)	
Q5 ,6	V03-0945-80	2SC945(A)(Q,P)	
Q7 ,8	v01-0992-10	2SA992(F,E)	
Q9	v01-0733-40	2SA733(A)(Q,P)	
Q10	v03-0945-80	2SC945(A)(Q,P)	
Q11	v03-0452-05	2SC1735	
Q12	v01-0173-05	2SA850	
Q13	v01-0733-40	2SA733(A)(Q,P)	
Q14	v03-0945-80	2SC945(A)(Q,P)	
Q15	v03-0452-05	2SC1735	
Q16	v01-0173-05	2SA850	
Q17	v01-0733-40	2SA733(A)(Q,P)	
Q18	v03-0945-80	2sc945(A)(Q,P)	
Q19	v03-0452-05	2sc1735	
Q20	v01-0173-05	2sa850	
Q21	v01-0733-40	2sa733(A)(Q,P)	
Q22	v03-0945-80	2sc945(A)(Q,P)	
Q23	V03-0452-05	2sc1735	
Q24	V01-0173-05	2sa850	
Q25	V01-0733-40	2sa733(a)(q,p)	
Q26	V03-0945-80	2sc945(a)(q,p)	
Q27	V03-0452-05	2sc1735	
028	v01-0173-05	2SA850	
029	v09-0160-10	2SK301(Q,R)	
030 ,31	v03-0945-80	2SC945(A)(Q,P)	
032 -34	v03-0945-80	2SC945(A)(Q,P)	
036	v03-0945-80	ZSC945(A)(Q,P)	
	UB (X13-3650		
D16 -26 C1 C2 ,3 C4 C5 C6	830-0198-05 C90-0586-05 C91-0085-05 C46-1747-35 C71-1712-15 C90-0581-05	LAMP ELECTRO 33UF 16WV CERAMIC 0.022UF N MYLAR 0.047UF J CERAMIC 120PF J ELECTRO 47UF 10WV	
C7	C26-1733-47	NP-ELEC 0.33UF 50WV	
C8 ,9	C90-0581-05	ELECTRO 47UF 10WV	
C10	C46-1710-45	MYLAR 0.1UF J	
C11	C71-1728-05	CERAMIC 27PF J	
C12 ,13	C90-0600-05	ELECTRO 0.47UF 50WV	
C14	C90-0595-05	ELECTRO 4.7UF 35WV	
C15 -20	C91-0085-05	CERAMIC 0.022UF N	
C21	C90-0581-05	ELECTRO 47UF 10WV	
C22	C90-0584-05	ELECTRO 10UF 16WV	
C23	C90-0581-05	ELECTRO 47UF 10WV	
C24 C25	c25-6533-57 c90-1216-05 c90-0588-05 c55-1710-38	LL-ELEC 3.3UF 35WV ELECTRO 3.3UF 16WV ELECTRO 100UF 16WV CERAMIC 0.01UF Z ELECTRO 4.7UF 35WV	
C26 C27 ,28 C29	c90-0595-05		}
C26 C27 ,28	C90-0595-05 C90-1201-05 C55-1710-38	ELECTRO 1UF 50WV CERAMIC 0.01UF Z	





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Ref. No.	Parts No.	Description	Re- marks			
参照番号	部品番号	部品名/規格	備考			
-	E40-0574-05	PIN CONNECTOR 5P				
L1	L32-0242-05	OSCILLATING COIL				
VR1	R10-3012-05	POTENTIOMETER 10K				
s1 -11	\$40-1053-05	PUSH SWITCH				
s12	\$40-2122-05	PUSH SWITCH				
D1 ,2	V11-0076-05	181555				
D3	V11-4176-76	xz-057				
D4 -12	V11-0076-05	181555				
D4	V11-0076-05	181555				
D6 -12	V11-0076-05	181555				
D13	v11-4176-76	XZ-057				
D14 ,15	v11-0076-05	151555				
D27 -30	v11-0076-05	151555				
IC1	v30-0405-10	AN6552				
IC2	v30-0301-70	TC4011BP				
103	v30-1066-06	TC4001BP				
104	v30-0301-70	TC4011BP				
105	v30-0405-10	AN6552				
106	v30-1020-26	NJM4558D				
107	v30-0698-10	TC4007UBP				
1C8	v30-0297-20	TC4069UBP				
1C9	v30-1143-06	TC4030BP				
1C10	v30-0701-10	TC4528BP				
1C11	v30-0702-10	TC9130P				
1C12	v30-0700-10	TC4044BP				
IC13	V30-0685-10	M74LS04P				
IC14	V30-0527-10	NJM4556D				
Q1 ,2	V03-0945-80	2SC945(A)(Q*P)				
Q3	V09-0160-10	2SK301(Q*R)				
Q4	V09-0144-20	2SK163(M*N)				
q5	v03-0945-80	2SC945(A)(Q,P)				
q6 ,7	v09-0160-10	2SK301(Q,R)				
q8 -12	v01-0733-40	2SA733(A)(Q,P)				
q13 -18	v03-0945-80	2SC945(A)(Q,P)				
q19	v01-0733-40	2SA733(A)(Q,P)				
Q20	V03-0945-80	2SC945(A)(Q,P)				
Q21	V01-0733-40	2SA733(A)(Q,P)				
Q22	V03-0945-80	2SC945(A)(Q,P)				
BA1	w09-0015-05	BATTERY				
S	SUB (X13-3660-10)					

422		•••	2007 12 (1117 127 17	1
BA1		w09-0015-05	BATTERY	
	SL	JB (X13-3660-	10)	
99	3 B	B38-0029-05	DISPLAY ASSY	
C1 C3 C5 C7 C8		C55-1710-38 C24-1210-67 C71-1747-05	CERAMIC 0.001UF K CERAMIC 0.01UF Z ELECTRO 10UF 16WV CERAMIC 47PF J CERAMIC 0.01UF Z	
C9 C12 C15 C16 C18	,17	c55-1710-38	CERAMIC 0.047UF Z CERAMIC 0.01UF Z ELECTRO 1UF 50WV CERAMIC 27PF J CERAMIC 0.01UF Z	
C19	,20	c55-1747-38	CERAMIC 0.047UF Z	
L1 L2 L5 X1	,6	L40-1092-11 L40-3311-11 L40-1092-11 L77-0574-05	INDUCTOR INDUCTOR INDUCTOR CRYSTAL RESONATOR	

Ref. No.	Parts No.	Description	Re-
参照番号	部品番号	部品名/規格	marks 備考
V R 1	R12-3302-05	TRIMMING POT. 10K	
D1 D4 -6	v11-4110-90 v11-0271-05	Wz-058 1s2076	
IC1 IC2 q1	v30-0568-10 v30-0517-10 v03-0945-90	M54459L LC7257 2sc945(A)	
Q3	v03-0945-90	2sc945(A)	
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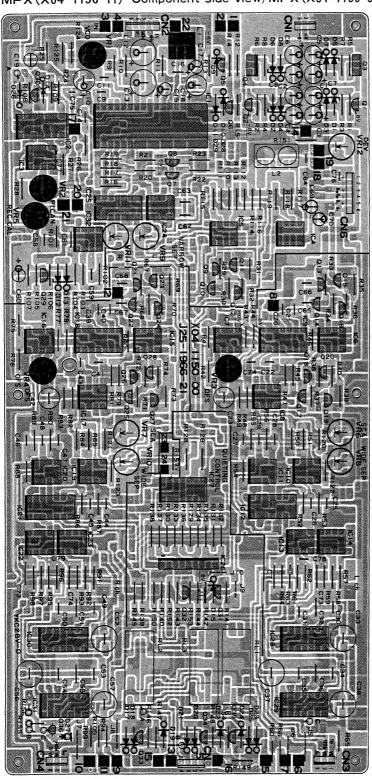


L-02T

PESAICE WYUNYF

SUPPLEMENT

MPX(X04-1150-11) Component side view/MPX(X04-1150-00) 部品面



Note: The component side foil pattern is lacking from the PC BOARD (X04-1150-11) illustration. On page 18, add this sheet to the service manual.

(注) MPX (X04-1150-00) の基板図で部品面のパターン が抜けています。このシートをサービスマニュア ルの14頁に追加してください。